

REMARKS

Introduction

The present application has been studied and amended in view of the outstanding Office Action dated November 20, 2007, and reconsideration of that Action is requested in view of the following comments.

Status of claims

Claims 1 to 13 are pending in the application.

Claims 1 to 13 have been rejected. Claims 1, 2, and 8 to 11 have been currently amended.

Amendments to claims

Claim 1 has been amended by defining the non-ionically stabilized epoxy resins **ABC** as mixtures of adducts of polyethylene glycol-modified epoxy resins **A** and epoxy resins **B** that are free from polyethylene glycol derived groups, with olefinically unsaturated acids **C**. This amendment is based on page 6, lines 7 to 10. Claim 1 has further been amended to define the epoxy resins **A** by the process as disclosed on page 6, lines 23 to 27, and by limiting the reactants of the advancement reaction to form resin **A** to polyhydric phenols, glycidyl esters, and glycidyl ethers of polyhydric phenols as disclosed on page 6, lines 23 to 27, and page 3, lines 9 to 11. The same amendments have also been made to claim 8.

Claim 2 has been amended to define component **DEF** as reaction products prepared by reacting polyfunctional isocyanates **D** with a mixture of polyfunctional aliphatic alcohols **E** and of hydroxyl group-containing olefinically unsaturated compounds **F**, as disclosed on page 7, lines 9 to 15.

Claim 8 has been amended by inserting the description of the reaction on page 6, lines 23 to 27, and the enumeration of the polyhydric phenols on page 3, lines 20 to 27.

Claim 9 has been amended by defining the synthetic route to **DEF** as taken from page 6, lines 12 to 15, and introducing the definition of component **ABC** from page 6, lines 7 to 10.

Claim 10 has been amended by introducing the definition of component **ABC** from page 6, lines 7 to 10.

Claim 11 has been amended in view of the dependency on claim 6 by replacing the adduct **ABC** by the mixture which is made according to claim 9.

It is deemed that no new matter has been added by such amendments, and entry of these amendments is respectfully requested.

The Office Action

Rejection under 35 U. S. C. § 112

Claims 1 to 13 have been rejected under 35 U. S. C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention.

Component **ABC** is now fully defined as a mixture of adducts of resins **A** and **B** with the acid **C** which forms an aqueous non-ionically stabilized epoxy resin system. The specification, on page 6, lines 23 to 32, clearly discloses that resins **A** and **B** are mixed, and that the acid **C** is then added thereto.

Component **DEF** is now also clearly defined by the synthetic route, see amended claim 2 which is based on page 7, lines 9 to 15, of the specification.

It is deemed that by virtue of the amendments as explained above, the objections under 35 U. S. C. 112, second and first paragraph, have now been rendered moot.

Rejection under 35 U. S. C. 103 (a)

Claim 1 of the present application has further been rejected under 35 U. S. C. § 103 (a) over Budde et al US 5,629,374 ("Budde").

Budde is directed to a process for producing a basecoat, where an acrylic resin having functional groups which are carboxylic acid groups, anhydride groups, and mixtures thereof, is neutralized with a tertiary amine and dispersed in water, and then the carboxylic acid groups of the acrylic resin are reacted with an organic compound having at least two oxirane groups, wherein the reaction the carboxylic acid groups and the oxirane groups is carried to from about 30 % to about 100 % of the theoretical completion. See claim 1.

The first step in this sequence is the preparation of an acrylic copolymer by copolymerization of the monomers of class (i), viz. ethylenically unsaturated carboxylic acid or carboxylic acid anhydride monomers, of class (ii), viz., acrylic or methacrylic alkyl esters derived from alcohols having from 1 to about 20 carbon atoms, or vinyl monomers such as vinyl aromatics, and of monomers of class (iii) having functional groups capable of undergoing crosslinking, viz., hydroxyalkyl (meth)acrylates or polyethylene glycol monoacrylates. See col. 3, lines 11 to 56. This copolymerization is carried out using conventional copolymerization techniques (col. 3, lines 57 to 60), and the reaction is conducted in a way to complete the reaction (see col. 4, lines 30 to 31), and optionally additional initiator is added to ensure complete conversion (col. 4, lines

31 and 32). Complete conversion in the case of a polymerization is nothing else than complete exhaustion of all polymerisable monomers by reaction of their olefinic double bonds, with the consequence that no olefinically unsaturated monomer, such as an olefinically unsaturated carboxylic acid, remains unreacted, and that no unsaturation remains as the polymerisation proceeds under consumption of the olefinic unsaturation.

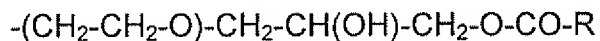
For this reason, a reaction between an olefinically unsaturated acid (component **C** of the present invention) is impossible, as only the acrylic resin (which is made by the polymerization process) is reacted with the organic compound with at least two oxirane groups (step b) in claim 1 of Budde), and not the monomers of class (i) before polymerization.

As the presence of, and reaction with, an olefinically unsaturated acid **C** is mandatory in claim 1, and as Budde explicitly teaches that the polymerization has to be complete, and suggests a way to ensure this complete conversion, there is no teaching, suggestion or motivation based on Budde to react monomeric olefinically unsaturated carboxylic acids instead of polymers made from a monomer mixture comprising such acids.

There is also no teaching in Budde to use a mixture of epoxy functional compounds, such as component **A** of the present invention which has polyoxyethylene groups, and a second epoxy functional compound which is free from such polyoxyethylene groups such as component **B** of the present invention. Although diglycidyl ethers of polyethylene glycol are mentioned in a list of a total of eleven diglycidyl ethers in col. 4, lines 57 to 61, there is no teaching, suggestion or motivation

to combine the diglycidyl ether of polyethylene glycol with another diglycidyl ether, the number of combinations of two different diglycidyl ethers from this list being 55.

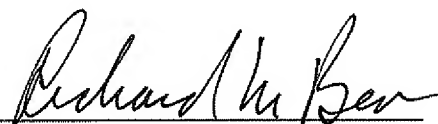
The structure of the polyoxyethylene modified epoxy resin **A** of the present invention differs also from the reaction products of the diglycidyl ethers of Budde in that in Budde, a structure of formula



is obtained by reaction of the diglycidyl ether of polyethylene glycol, R being the residue of the acrylic copolymer, while in the present invention, due to the formation of the polyethylene glycol modified resin by reacting an epoxy resin having at least two epoxy groups per molecule with polyethylene glycol under ring-opening, and then subjecting this resin of the first step to an advancement reaction, there can never be a structure where a polyoxyethylene group is separated from the acid residue by just one glycerol moiety like in the Budde reference.

Therefore, Budde does not provide any teaching or suggestion of reaching the object of the present invention. It is therefore respectfully requested to reconsider the merits of the present invention, and to conclude favorable regarding the patentability.

Respectfully submitted,

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